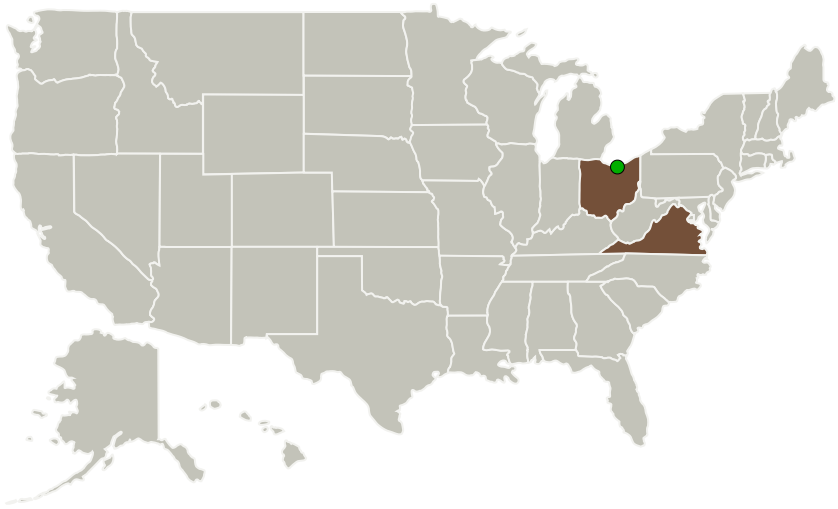
Tactile Data Entry System, Phase II

Completed Technology Project (2011 - 2013)

Project Introduction

Building on our successful Phase I Tactile Data Entry program, Barron Associates proposes development of a Glove-Enabled Computer Operations (GECO) system to permit suited crewmembers to perform virtual keyboard/mouse interactions using an instrumented EVA glove. The Phase II system will use two-hand motion tracking, multi-finger gesture recognition, and vibrotactile feedback to create an intuitive human-computer interface that mirrors familiar desktop data entry modalities. The program will deliver demonstration hardware and software compatible with laboratory, field, and on-orbit testing of crewmember performance in relevant data entry tasks. The prototype will include functional EVA gloves with integrated motion sensing and vibrotactile transducers that couple to existing NASA suits via a quick-connect fitting. We will produce right and left hand gloves, lower arm suit sections, and a specialized two-port acrylic glove box to enable human subject evaluations in a realistic pressurized environment. Initial trials at Barron Associates will permit refinement of design concepts, followed by more extensive usability, comfort, and durability testing at NASA.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Barron Associates, Inc.	Lead Organization	Industry	Charlottesville, Virginia
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
Ohio	Virginia

Project Transitions

June 2011: Project Start

August 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139973)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Barron Associates, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

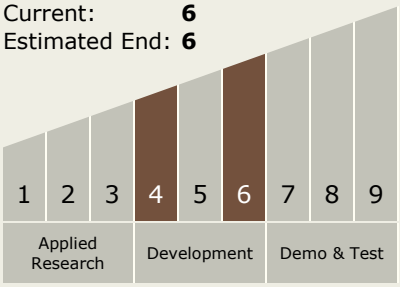
Carlos Torrez

Principal Investigator:

Richard Adams

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.4 Human-Robot Interaction
    - TX04.4.2 Distributed Collaboration and Coordination

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System